**JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS**
**Volume 82, Numbers 1–2, 15 September 1997**

## Contents

*F. Broeckx, M.J. Goovaerts, R. Piessens and L. Wuytack*
Preface 1

*M.B. Abd-el-Malek and M.N. Makar*
Nonlinear progressive internal gravity wave on fluid of trapezoidal bottom 3

*R. Aïd and L. Levacher*
Numerical investigations on global error estimation for ordinary differential equations 21

*S.L. Campbell and W. Marszalek*
DAEs arising from traveling wave solutions of PDEs 41

*Y. Chen and M.E.H. Ismail*
Asymptotics of extreme zeros of the Meixner–Pollaczek polynomials 59

*G. Denk and Chr. Penski*
Integration schemes for highly oscillatory DAEs with applications to circuit simulation 79

*K. Diethelm*
New error bounds for modified quadrature formulas for Cauchy principal value integrals 93

*J.A. Ford and I.A. Moghrabi*
Alternating multi-step quasi-Newton methods for unconstrained optimization 105

*R. Gerstberger and P. Rentrop*
Feedforward neural nets as discretization schemes for ODEs and DAEs 117

*S. González Pinto, S. Pérez Rodríguez and J.I. Montijano Torcal*
On the numerical solution of stiff IVPs by Lobatto IIIA Runge–Kutta methods 129

*P. Guillaume*
Nested multivariate Padé approximants 149

*M. Günther and M. Hoschek*
ROW methods adapted to electric circuit simulation packages 159

*J.M. Gutiérrez and M.A. Hernández*
Third-order iterative methods for operators with bounded second derivative 171

*V. Heuveline and M. Sadkane*
Parallel computation of polynomials with minimal uniform norm and its application to large eigenproblems 185

*W. Hürlimann*
Best bounds for expected financial payoffs I Algorithmic evaluation 199

*W. Hürlimann*
Best bounds for expected financial payoffs II: Applications 213

*M. Igarashi and T. Ypma*
Empirical versus asymptotic rate of convergence of a class of methods for solving a polynomial equation 229

*Y.J. Kim, K.H. Kwon and J.K. Lee*
Orthogonal polynomials in two variables and second-order partial differential equations 239

*L. Lopez, C. Mastroserio and T. Politi*
Variable step-size techniques in continuous Runge–Kutta methods for isospectral dynamical systems 261

*E. Maisse and J. Pousin*
Diffusion and dissolution/precipitation in an open porous reactive medium 279

*M. Marin*
On weak solutions in elasticity of dipolar bodies with voids 291

*A. Mazzia and F. Mazzia*
High-order transverse schemes for the numerical solution of PDEs 299

*J. Nedoma*
Finite element approximation of a coupled contact Stefan-like problem arising from the time discretization in deformation theory of thermo-plasticity 313

*M.R.M. Razali, M.Z. Nashed and A.H.M. Murid*
Numerical conformal mapping via the Bergman kernel 333

*V.V.S.S. Sastry*
Graphical user interfaces for numerical libraries 351

*P.A. Selting and Q. Zheng*
Numerical stability analysis of oscillating integrated circuits 367

*J. Steelant, E. Dick and S. Pattijn*
Multigrid methods for compressible Navier–Stokes equations in low-speed flows 379

*H. Swann*
Error estimates using the cell discretization method for steady-state convection–diffusion equations 389

*P.J. van der Houwen and E. Messina*
Parallel linear system solvers for Runge–Kutta–Nyström methods 407

*H. van der Ven, B.E. Niemann-Tuitman and A.E.P. Veldman*
An explicit multi-time-stepping algorithm for aerodynamic flows 423

*P. Wilders and G. Fotia*
Distributed implicit stepping with unstructured finite volumes for 2D-transport 433

*J. Wimp, P. McCabe and J.N.L. Connor*
Computation of Jacobi functions of the second kind for use in nearside–farside scattering theory 447

*Y. Yamagishi*
Stable spiral orbits of SOR Durand–Kerner's method applied to the equation $x^d=0$ 465